



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SEASONAL VARIATIONS IN THE NEW YORK MONEY MARKET

It was nearly a half-century ago that W. Stanley Jevons read before the Statistical Society of London his classic paper on the *Frequent Autumnal Pressure in the Money Market, and the Action of the Bank of England*.¹ Since that time several others have made careful studies of the seasonal movements of the London money market.² The subject of seasonal variations in American money markets, however, has been largely neglected by economists, although the fact that the United States is to such a large extent an agricultural country makes the subject one of great importance on this side of the Atlantic.

About two years ago the writer undertook the preparation of a report for the National Monetary Commission on the subject of *Seasonal Variations in the Relative Demand for Money and Capital in the United States*. The object of the report was to throw light upon the regularity and the extent of these seasonal variations, upon the degree to which our currency and credit system responds to them, and finally upon their probable influence upon the country's economic and financial life. This report³ has recently been published and the present paper is largely based upon data which it contains.

The seasonal swings of the money market are quite varied in different parts of the country, and as limits of space prevent a consideration here of more than one city, we shall confine ourselves largely to New York City, the country's principal money market.

For expressing and comparing the seasonal movements of various money market phenomena, index numbers computed by the following method⁴ have been employed. Each year is taken as a unit; the average rate (or amount,⁵ as the case may be) for

¹ *Journal of the Royal Statistical Society*, XXIX, (June 1866), 235-253; reprinted in Jevons, *Investigations in Currency and Finance* (London, 1884).

² Cf. for example, G. Clare, *A Money Market Primer*, 2nd edition (London, 1902), chap. 8-11, and charts between pp. 140 and 141; also R. H. Inglis Palgrave, *Bank Rate and the Money Market* (London, 1902), chap. 11-20.

³ Senate Doc., No. 588, 61 Cong., 2 Sess. This report will be cited in future references in this article merely by the word *Report*.

⁴ For a fuller explanation of the method of computing these index numbers, and discussion of their merits and defects, see *Report*, 13-15.

⁵ *Ibid.*, 22.

the lowest week in each year is designated by an index number of 0, that for the highest week in the same year by an index number of 100, and the others are pro-rated. The weekly index numbers so obtained for each of the nineteen years, 1890-1908, covered by the study, are then combined by averaging together those of the nineteen first weeks, then those of the nineteen second weeks, and so on throughout the fifty-two weeks of the year. The resulting composite is treated as the criterion of the regularity of the seasonal variations during the period.

For each of the phenomena studied simple averages of the rates (or amounts) themselves are also given, along with the index numbers. These averages are more satisfactory evidence than the index numbers concerning *the extent* of the seasonal swings.

The seasonal movements of some of the more important money market phenomena are summarized in the accompanying table, and expressed graphically upon the two charts. Chart I shows the movements of call interest rates, discount rates on 60-90 day two-name commercial paper, percentages of bank reserves to deposits of the New York associated banks, and the circulation of deposit currency as evidenced by New York clearings—all phenomena relating to New York City considered by itself. Chart II is concerned with phenomena showing the relations of the New York money market with the money markets of other places, i. e. domestic exchange (Chicago), internal currency movements, sterling exchange, and gold imports and exports. There is also added to Chart II a curve (logically belonging to Chart I⁶) showing the seasonal movements of bond prices.⁷

The best two criteria for seasonal fluctuations in the New York money market are probably call interest rates on the New York Stock Exchange, and percentages of reserves to deposits in New York associated banks. These figures are crucial figures in the money market, they are very responsive to changing conditions, and reflect the immediate situation more correctly than do interest rates on time obligations which involve to a greater extent the anticipating and discounting of the future. On the other hand, rates on time obligations, being less susceptible to minor and temporary influences, bring out more clearly the broad seasonal

* The placing of this curve on Chart I would have unduly crowded the chart.

⁷ See below, 47-48.

swings, although the varying degrees⁸ to which such a rate discounts the future renders it an unsafe guide for marking the beginning and ending of seasonal swings. A comparison of the curve for call rates (curve A) in Chart I with that for interest rates on 60-90 day two-name commercial paper (curve B) will show this distinction. In the following discussion the criteria used will be call rates and bank reserves.

Ignoring minor fluctuations, we observe the following five seasonal swings which occur with a high degree of regularity.

The first swing is a pronounced easing up of the money market beginning about the first of the year and extending until well along⁹ in February, making the latter part of January and the forepart of February normally a period of "cheap money". For the nineteen years, 1890-1908, the average call rate fell from 6.4 per cent for the first week of the year to 2.5 per cent for the seventh week, and the average index number from 43.4 to 9.8. With the exception of the year 1895 the seventh week was lower than the first week in every one of the nineteen years. The figures of the New York bank statement normally show a progressively easier money market during the first few weeks of the year, although they reflect the subsequent reaction earlier than do call rates. From 28.6 per cent for the first week, the average percentage of reserves to deposits rose to 30.3 (the highest point in the year) for the fourth week, while the average index number rose from 44.3 to 86.9. Every year showed a higher percentage of reserves for the fourth week than for the first.

The causes of this easing up of the New York money market during the first few weeks of the year, like those of the other seasonal movements to be studied, are found partly in local conditions, and partly in conditions outside of New York. Among the causes for this first movement may be mentioned: (1) The natural reaction—in part psychological—which results from the

*The *Report* gives also the figure for four months time paper. One of the most interesting and difficult problems suggested by the investigation, is that of the correlation in time among the seasonal movements of different money market phenomena.

*The seasons vary so from year to year, i. e., in some years they are earlier and in some years later; and the testimony of different indexes to money market movements so frequently differ by a week or so with reference to the beginning and ending of these seasonal swings, that it seems best not to attempt to mark them off with precise dates—a procedure which would suggest a false idea of their accuracy.

relaxing of the heavy strain on the money market incident to the accountings and settlements of January 1st. The end of the year is a time of considerable "window dressing" in preparation for January 1st statements and reports. Furthermore, large accumulations of funds in New York City are necessary in December to meet annual, semi-annual, and quarterly disbursements, such as interest on bonds and mortgages, dividends on stock, principals of maturing obligations, and the like. Of 887 bonds listed by the *Commercial and Financial Chronicle* (January 2, 1909, pp. 42-45) for which interest periods are given, 290 call for interest payments on January 1. Mr. J. H. Brookmire of St. Louis, a high authority on such matters, estimates that interest and dividend disbursements on bonds and stocks for January, in New York City, amount to approximately \$225,000,000. The payment of these obligations releases the strain upon the banks and throws funds on the market seeking reinvestment. (2) A second cause is the return flow of cash to the New York banks which has been withdrawn in considerable quantities for holiday purposes. (3) By the first of January the crop-moving demand for money in the West and South has spent its force. The latter part of December, January, and the forepart of February, is normally a period of relatively high exchange rates on New York in Chicago and St. Louis, and the period in which the return flow of cash to New York City from the West and South principally takes place. This flow of cash is caused to a considerable extent by the practice of certain New York banks of paying two per cent interest on bankers' balances. The strongest net movement of cash from the interior toward New York City, of any period of the year, normally takes place during the first five weeks. Computing index numbers in the manner previously described and designating the week of maximum net movement *into* New York banks for each year by 100, that of the maximum net movement *out of* New York banks by 0, pro-rating the figures for the other weeks, and then taking the average figures by weeks for the ten year period 1899-1908, we find that the average index numbers for the first five weeks respectively were 87.2, 84.9, 90.7, 87.6, and 77.0 (Chart I, curve B). Of total receipts from points outside New York State, reported by the New York City banks to the Monetary Commission for the four years 1905-1908, amounting to \$649,671,000, January receipts claimed \$114,354,000. January had the largest receipts of any month in every one of the

four years.¹⁰ Large bank reserves are piled up as the result of this eastward movement of cash, the banks' supply of loanable funds increases rapidly, and interest rates naturally decline. (4) A fourth reason is found in the fact that January and February are months of relatively small freight traffic. The holiday trade is over. Traffic on the Great Lakes and other inland waterways is tied up because of the ice, while the cold weather and snow interferes with railroad traffic. (5) A fifth reason is found in the seasonal tendencies of our foreign trade.¹¹ The four months of largest export trade in their order of importance are December, November, October, and January. There is normally a striking decline in our exports in February and March. In the United States exports are ordinarily paid for by dealers in foreign exchange at the time of shipment of goods so that the heavy exports for the four months ending with January have made large demands upon banking capital—demands which fall off rapidly in February. The import trade during recent years has normally been large in October, November, and December; and as bills for imports are ordinarily settled sixty or ninety days or longer after shipments are made, the banks normally receive in January and February considerable funds in settlement for goods imported during the last three months of the year. During January and the forepart of February sterling exchange, which ordinarily dominates the foreign exchange market, tends upward¹² and gold movements tend to be relatively small.

The second important seasonal movement in the New York money market extends from about the middle of February until the forepart of April. During this period the relative demand for loanable capital advances rapidly to a high level which is maintained during the latter part of March and the forepart of April. This period is known as that of the "spring revival". From 2.5 per cent for the 7th week, the average rate on call loans (1890-1908) advanced to 4 per cent for the 14th week (forepart of April), while the average index number advanced at the same time from 9.8 to 23.8. The 14th week was higher than the 7th week in thirteen of the nineteen years; in four years the figures for the two weeks were the same, leaving only two years in which

¹⁰ *Report*, 124-129.

¹¹ *Ibid.*, 138.

¹² *Ibid.*, 138.

the 14th week was the lower.¹³ The average ratio of reserves to deposits declined from 30.3 for the 4th week to 27.7 for the 11th (latter part of March), and continued at approximately this level until the 15th week (middle of April); the average index number declined from 86.9 for the 4th week to 37 for the 11th week, and to 35.7 for the 14th. In sixteen of the nineteen years the ratio of reserves to deposits was lower in the 14th week than in the 4th; and in the three exceptional years (viz., 1898, 1907, and 1908), it was only slightly higher.

Among the principal causes for this "spring revival" may be mentioned the following: (1) There is the natural reaction—stimulated somewhat by the psychological buoyancy of spring time—from the abnormally weak market which characterizes the latter part of the previous period. The low interest rates and high bank reserves encourage investment and speculation. Greater activity pervades the security market.¹⁴ New capital flotations are frequently held for the "cheap money" which is generally expected for February. (2) A second reason is found in the demands of agriculturists for the planting of crops. (3) A third is found in the increase in certain lines of trade activity, which normally takes place at this time of the year. Inland waterways are opened to traffic during the latter part of this period, and railroad traffic is released from the incubus of cold weather and snow. (4) A fourth reason is found in the comparatively large demands for funds for the settlement periods of March 1st and April 1st. One of the most striking temporary movements of the year in New York clearings (chart I, curve D), as well as in those of the country as a whole, is the sharp increase followed by an almost equally sharp decline about the first week in March, due primarily to the fact that March 1st is the common settlement day throughout large sections of the country, particularly the Middle West, for farm mortgages, and farm sales.¹⁵ Dividends, moreover, are payable about this time on a large number of important stocks.¹⁶ April 1st, marking the beginning of a new quarter, is an important settlement day for which preparations must be made. Of the 887 bonds listed in the *Commercial and*

¹³ The years were 1896, in which the rate for the 7th week was $3\frac{1}{2}$ per cent, and that for the 14th was $3\frac{1}{4}$; and 1907, when the rates for the two weeks respectively were $4\frac{3}{4}$ per cent and 3 per cent.

¹⁴ *Report*, 28 and 211-212.

¹⁵ *Ibid.*, 162.

¹⁶ *Ibid.*, 162.

Financial Chronicle (Jan. 2, 1909, pp. 42-45), for which interest periods are given, 162 call for interest payments on April 1st. (5) A fifth though minor reason is found in the flow of currency from New York to New England at this time. March and April are months of large shipments of cash from New York City to New England, as a result principally of heavy payments being made at this time through New York City by western and southern jobbers to New England shoe manufacturers,¹⁷ and, to a lesser degree, probably to the spring demands of New England farmers. The following figures show for the years 1905-1908 the shipments and receipts of cash reported by New York City banks for the months of February, March, and April, and the four years collectively, to and from New England States.¹⁸

	Total Amt.	Average Index No.
Shipments to New England		
February (1905-1908)	\$10,495,000	12.6
March "	18,907,000	50.9
April "	24,117,000	74.7
Total 4 years "	185,599,000	
Receipts from New England		
February (1905-1908)	4,312,000	7.1
March "	5,954,000	18.0
April "	7,417,000	30.1
Total 4 years "	92,492,000	

During the entire period under review (7th to 15th week), the net interior movement of cash is toward New York City,¹⁹ but nothing like as strongly as during the preceding period. (6) A sixth cause, though a relatively unimportant one, is the fact that receipts of cash by the Federal Government are normally large in March and April,²⁰ and during these months the sums tied up in the subtreasury are considerably larger than in the preceding two months. The average figures (1890-1908) for net balances of public moneys in Treasury offices for the first four months were as follows:

	Amount	Index Number
January	\$111,300,000	39.6
February	115,900,000	44.4
March	123,300,000	59.9
April	122,100,000	56.9

¹⁷ *Report*, 92.

¹⁸ *Ibid.*, p. 77 and 79.

¹⁹ *Ibid.*, p. 125, 128, 129.

²⁰ *Ibid.*, p. 155-157.

We may now pass to the third important seasonal swing in the New York money market, that is, a rapid weakening of the market beginning about the middle of April and ending with a very weak market in June and July (except for a strengthening at about the time of July 1st settlements).²¹

Call interest rates show a strong downward tendency from the forepart of April (14th or 15th week) to the latter part of June (24th or 25th week). They advance sharply about the time of July 1st settlements, and then return to the low summer level the latter part of July. The average rate fell from 4 per cent in the 14th week to 2.5 per cent in the 25th, while the average index number fell from 23.8 to 8. A reference to the figures for the individual years shows that the decline is a fairly regular one, the 25th week being higher than the 14th in only two years out of the nineteen. From the 25th to the 26th week (about first week in July) the average rate advanced from 2.5 per cent to 3.6 per cent, and the average index number from 8 to 16.4. In only one year (1900) of the nineteen, was the 26th week lower than the 25th, and in this year the difference was only that between $1\frac{5}{8}$ per cent and $1\frac{3}{8}$ per cent. A sharp decline takes place in the next three weeks in July, the average rate dropping from 3.6 per cent in the 26th week to 2.3 per cent in the 29th, and the average index number from 16.4 to 5.3. In thirteen of the nineteen years, the 29th week was lower than the 26th, in two years higher, and in four years the rates for the two weeks were the same. Turning to the movement of bank reserves we find that beginning the forepart of April the ratio of reserves to deposits moves upward, with minor interruptions,²² until the last of July. The average ratio advanced from 27.8 per cent for the 14th week to 28.7 per cent for the 30th week, the average index number rising from 35.7 for the 14th week to 65.4 for the 30th week. In fourteen of the nineteen years the percentage of reserves to deposits was higher for the 30th week than for the 14th.

The causes for this late spring decline in the money market, and subsequent summer depression are too familiar to require more than brief mention. Aside from the natural reaction from the

²¹ July 1st interest and dividend disbursements in New York City are about as large as those for January 1st, and are estimated by Mr. James H. Brookmire to amount to about \$225,000,000. *Report*, 28.

²² There was a sharp and temporary decline about the first week in July due to the demands for semi-annual disbursements.

* All years are adjusted to the nearest 52 weeks, and the calendar schedule is based on a year like 1911, in which January 1st falls on Sunday.

† The figures used in the preparation of these averages were those given in the *Commercial and Financial Chronicle*, and the *Financial Review*.

‡ Average covers only 18 years.

§ Average covers only 17 years.

¶ The figures for the individual years, on which these averages are based, were compiled for the National Monetary Commission by Mr. C. P. Clifford, assistant manager of the foreign exchange department of the First National Bank of Chicago.

‡ The figures for the individual years, on which these averages are based, were compiled from the daily figures given in the *Financial Review* for the period 1890-1898; for the period 1899-1908, they were prepared by Mr. F. I. Kent, vice-president of the Banker's Trust Company, of New York.

§ Figures upon which these averages are based were compiled from the *Monthly Summary of Commerce and Finance of the United States*.

¶ In computing the seasonal index number, the maximum monthly net exportation each year (representing the cheapest money in United States) was designated by an index number of 0, and the maximum monthly net importation each year (representing the dearest money in United States) was designated by an index number of 100, and the net exports or imports of the other months were pro-rated.

‡ For a description of method of computing this table, see *Report*, pp. 173-174.

MONTH AND WEEK ^a	CALL INTEREST RATES ON STOCK EXCHANGE ^b		INT 60-9 COM
	AVERAGE RATE	SEASONAL INDEX NUMBER	
Jan.— 1....	6.4	43.4	
2....	3.6	23.8	
3....	2.8	14.9	
4....	2.5	11.9	
Feb.— 5....	2.5	11.1	
6....	2.4	10.1	
7....	2.5	9.8	
8....	2.7	13.4	
Mar.— 9....	3.0	15.1	
10....	3.6	19.7	
11....	3.9	22.4	
12....	3.2	19.2	
Apr.— 13....	3.6	22.0	
14....	4.0	23.8	
15....	3.8	23.1	
16....	3.0	17.5	
17....	2.9	15.4	
May— 18....	3.4	19.3	
19....	3.5	19.5	
20....	2.6	13.9	
21....	2.4	11.2	
Jun.— 22....	2.3	9.6	
23....	2.3	8.0	
24....	2.4	7.7	
25....	2.5	8.0	
July— 26....	3.6	16.4	
27....	3.4	13.6	
28....	2.9	9.6	
29....	2.3	5.3	
30....	2.4	5.6	
Aug.— 31....	2.5	6.0	
32....	2.5	6.3	
33....	2.6	7.4	
34....	3.7	13.6	
Sep.— 35....	3.0	12.3	
36....	4.1	20.7	
37....	4.2	23.4	
38....	4.3	30.6	
39....	4.2	29.6	
Oct.— 40....	4.5	27.9	
41....	4.0	24.4	
42....	3.6	19.4	
43....	6.5	29.3	
Nov.— 44....	7.1	32.9	
45....	5.4	30.3	
46....	4.8	26.1	
47....	4.2	26.1	
Dec.— 48....	4.0	26.8	
49....	4.9	30.3	
50....	5.5	39.2	
51....	6.6	46.1	
52....	7.4	49.3	

SEASONAL VARIATIONS IN THE NEW YORK MONEY MARKET,

RATES CHANGE ^b	INTEREST RATES ON 60-90 DAY, 2 NAME COMMERCIAL PAPER ^b		PERCENTAGE OF RE- SERVES TO DEPOSITS, N. Y. ASSOCIATED BANKS ^b		CIRCULATION OF DE- POSIT CURRENCY ^b		EXCHANGE RATES IN CHICAGO ON NEW YORK, ^c 1899-1908		NET INTERIOR OUT OF AND BANKS	
	AVERAGE RATE	SEASONAL INDEX NUMBER	AVERAGE PERCENTAGE	SEASONAL INDEX NUMBER	AVERAGE CLEARINGS (000,000)	SEASONAL INDEX NUMBER	AVERAGE RATE (Premium or Discount)	SEASONAL INDEX NUMBER	AVERAGE AM OUT OF 000	
43.4	5.0	53.1	28.6	44.3	° \$1,237.5	° 60.8	2.5 P	64.7		
23.8	4.7	41.5	29.1	64.9	° 1,253.6	° 59.6	5 P	67.4		
14.9	4.5	31.2	29.9	78.8	° 1,224.7	° 54.4	5 P	67.7		
11.9	4.3	22.7	30.3	86.9	° 1,140.0	° 44.0	10 P	72.1		
11.1	4.3	22.9	29.9	77.8	° 1,190.5	° 52.5	2 P	63.0		
10.1	4.3	22.1	29.2	65.4	° 1,084.1	° 38.4	6 D	54.8		
9.8	4.3	22.2	28.8	58.1	° 1,004.8	° 32.1	9 D	50.7		
13.4	4.4	26.5	28.5	53.6	° 944.0	° 22.6	20 D	38.8		
15.1	4.6	32.6	28.1	45.5	° 1,165.7	° 51.5	29.5 D	28.1		
19.7	° 4.6	° 34.3	27.9	43.1	° 1,067.9	° 38.2	23 D	35.0		
22.4	4.8	40.0	27.7	37.0	° 1,119.7	° 42.7	13 D	45.9		
19.2	4.8	39.6	27.9	39.9	1,042.3	33.1	14.5 D	43.5		
22.0	4.8	38.1	28.0	40.5	1,051.4	35.5	5 D	53.9		
23.8	4.7	36.7	27.8	35.7	1,135.4	48.0	14 D	44.5		
23.1	4.6	33.4	27.9	39.9	1,119.0	42.9	7.5 D	52.2		
17.5	4.5	31.9	28.4	50.9	1,123.5	46.7	4 P	66.3		
15.4	4.4	27.5	28.6	54.4	1,107.6	43.3	9 D	48.4		
19.3	4.4	26.9	28.3	48.3	1,283.3	67.3	3.5 D	55.9		
19.5	4.4	24.5	28.4	48.0	1,175.4	52.7	2.5 P	62.0		
13.9	4.3	22.7	28.6	51.6	1,123.4	48.0	16 P	76.7		
11.2	4.2	19.9	29.0	60.3	1,011.8	34.1	16 P	77.3		
9.6	4.1	17.1	28.8	57.2	908.1	21.4	10 P	71.1		
8.0	4.1	15.8	28.7	56.1	1,039.4	37.9	5 P	64.6		
7.7	4.1	15.3	28.7	56.7	967.8	31.1	4 P	63.6		
8.0	4.3	18.4	28.7	57.5	938.7	25.8	10.5 P	72.8		
16.4	4.5	22.0	28.4	53.5	1,013.9	35.4	11.5 P	73.6		
13.6	4.5	25.0	27.9	45.0	991.5	33.1	16.5 D	40.3		
9.6	4.6	26.9	28.4	56.3	1,034.6	35.6	7.5 D	50.6		
5.3	4.6	31.1	28.7	63.3	970.2	26.6	8 D	52.6		
5.6	4.6	33.5	28.7	65.4	924.6	21.1	10.5 D	50.0		
6.0	4.6	35.2	28.3	60.8	962.7	27.9	11 D	48.7		
6.3	4.8	40.5	28.0	54.3	910.6	20.8	17.5 D	41.8		
7.4	4.9	43.7	27.8	49.3	948.0	25.9	19 D	40.1		
13.6	5.3	49.5	27.7	47.7	931.1	23.9	34.5 D	22.7	\$249	
12.3	5.3	51.8	27.6	42.6	956.8	29.0	37.5 D	18.8	1,477	
20.7	5.3	55.4	27.2	32.8	880.7	19.2	36.5 D	19.1	2,620	
23.4	5.1	57.5	27.0	28.8	1,033.6	38.6	25 D	34.7	2,589	
30.6	5.3	64.7	27.1	31.9	1,058.7	44.3	26 D	33.5	3,434	
29.6	5.3	63.2	27.5	37.4	1,066.1	36.9	33 D	26.1	3,489	
27.9	° 5.2	° 61.7	27.3	33.0	1,135.2	59.0	32 D	27.2	3,883	
24.4	° 5.1	° 61.5	27.3	33.0	1,094.1	46.4	29.5 D	29.0	2,543	
19.4	° 4.9	° 53.2	27.5	34.1	1,132.3	49.6	27.5 D	30.8	3,014	
29.3	° 4.9	° 51.4	27.6	36.4	1,144.0	50.1	31 D	24.2	3,685	
32.9	° 4.9	° 48.9	27.2	27.5	1,140.7	54.2	29 D	27.6	2,700	
30.3	° 4.9	° 51.3	27.1	22.7	1,077.6	45.3	20 D	36.9	2,666	
26.1	° 5.0	° 53.5	27.4	29.4	1,283.9	65.7	4.5 D	53.4	1,530	
26.1	° 4.7	° 46.0	27.8	36.1	1,177.0	55.6	13 P	71.2	563	
26.8	4.8	48.6	27.6	32.3	1,107.7	48.1	2.5 D	53.2	213	
30.3	° 4.7	° 47.8	27.2	24.9	1,191.3	65.2	11.5 D	47.3	836	
39.2	° 4.8	° 51.6	27.4	29.4	1,222.4	63.5	5 P	64.7		
46.1	° 4.8	° 49.3	27.5	32.8	1,202.1	60.8	3.5 P	65.1		
49.3	° 4.9	° 52.2	27.7	35.3	1,015.3	35.8	3.5 P	65.1		

NEY MARKET, 1890-1908

NET INTERIOR MOVEMENT OF CASH OUT OF AND INTO N. Y. CITY BANKS, ^b 1899-1908			STERLING EXCHANGE, DEMAND DRAFTS ^c		EXPORTATION AND IMPORTATION OF GOLD, U. S., 1890-1908 (MONTHLY FIGURES) ^e			PRICES OF 27 RAILROAD BONDS (396 "BOND- YEARS") ^f	
AVERAGE AMOUNT		SEASONAL INDEX NUMBER	AVERAGE RATE	SEASONAL INDEX NUMBER	TOTAL EXCESS EXPORTS 000	TOTAL EXCESS IMPORTS 000	SEASONAL INDEX NUMBER ^b	AVERAGE PRICE	SEASONAL INDEX NUMBER
OUT OF 000	INTO 000								
	\$6,684	87.2	\$1.8606	42.7	Jan. \$32,747		Jan. 46.7	\$98.99	48.1
	6,621	84.9	4.8657	54.7				99.20	51.0
	7,773	90.7	4.8679	59.4				99.44	55.5
	6,895	87.6	4.8697	64.1	Feb. 13,408		Feb. 49.4	99.68	59.3
	4,749	77.0	4.8695	64.1				99.79	60.9
	2,576	63.7	4.8696	64.8				99.76	59.9
	1,436	53.8	4.8708	66.9				99.64	58.5
	1,157	52.3	4.8697	65.4		March \$ 43,233	March 60.0	99.33	54.9
	1,679	58.5	4.8692	65.7				99.27	52.7
	604	50.5	4.8676	62.0				99.06	51.5
	716	49.8	4.8665	59.1				99.02	51.1
	1,535	54.4	4.8681	61.6	April 29,888		April 48.4	99.02	51.5
	999	53.5	4.8704	65.9				99.12	53.0
	868	53.9	4.8711	67.4				99.16	53.6
	1,903	59.0	4.8714	68.2				99.25	54.8
	2,085	62.1	4.8734	73.6				99.24	54.2
	1,379	61.6	4.8748	78.1	May 148,048		May 31.8	99.34	54.7
	594	56.5	4.8739	76.3				99.44	55.2
	2,952	65.0	4.8734	74.2				99.44	54.5
	4,306	74.5	4.8739	75.5				99.40	53.4
	4,229	74.7	4.8752	79.1	June 133,531		June 31.3	99.41	53.7
	3,862	60.9	4.8760	80.9				99.49	54.8
	3,529	68.6	4.8757	81.1				99.50	55.1
	3,354	66.7	4.8756	81.0				99.56	56.7
	3,597	68.5	4.8742	79.0	July 37,352		July 42.8	99.52	56.0
	2,158	58.3	4.8721	74.6				99.48	55.9
	1,441	53.1	4.8715	72.9				99.48	55.4
	3,456	68.0	4.8717	72.6				99.32	53.7
	3,692	69.3	4.8717	72.6				99.28	53.4
	4,735	73.1	4.8720	73.2		August 44,300	August 57.0	99.15	51.8
	2,955	63.4	4.8702	69.6				99.22	52.1
	1,395	57.3	4.8693	68.0				99.23	52.1
	2,517	49.4	4.8669	61.3				99.22	52.5
\$249		45.5	4.8651	56.9		Sept. 117,904	Sept. 70.7	99.24	52.9
1,477		35.7	4.8626	50.4				99.47	55.2
2,620		29.9	4.8601	43.7				99.49	54.9
2,589		30.2	4.8564	35.2				99.36	52.9
3,434		24.8	4.8552	32.0				99.23	51.1
3,489		27.0	4.8557	31.9				99.20	50.4
3,883		32.0	4.8538	27.3		Oct. 152,716	Oct. 79.7	99.16	49.3
2,543		32.8	4.8540	29.7				99.11	50.0
3,014		30.3	4.8549	32.9				99.25	52.2
3,685		29.6	4.8576	41.5				99.34	53.5
2,700		34.7	4.8567	39.7		Nov. 96,743	Nov. 63.0	99.31	52.8
2,666		37.1	4.8554	38.8				99.44	52.8
1,530		43.6	4.8594	44.1				99.38	52.8
563		48.6	4.8623	49.5				99.36	52.9
213		49.0	4.8615	49.3		Dec. 34,437	Dec. 53.2	99.57	55.3
836		44.2	4.8596	45.6				99.75	56.3
	515	52.4	4.8604	47.0				99.60	54.2
	60	47.6	4.8611	49.0				99.39	52.2
	2,188	61.7	4.8592	45.0				99.58	55.0

strong market with which the previous period ended the principal factors appear to be: (1) The hot summer months, comprising the vacation period, the period before the great crop movements of the fall set in, are naturally dull months; and this summer dullness is to a considerable extent discounted in advance. (2) The decline in money market rates in New York in the late spring and early summer is hastened by the large flow of currency from the Middle West in April, May, and June, particularly in May, after the spring demand of agriculturists has subsided. The movement of cash toward New York at this time is of course due largely to the practice of New York banks of paying two per cent interest on bankers' balances, and to the greater opportunities in New York City for short time investments and speculation. For the four years 1905-1908, the total amounts of currency reported by New York banks as received from the Middle Western States, were for the months of March, April, May, June, and July respectively, \$9,625,000, \$17,420,000, \$21,601,000, \$19,499,000, and \$7,299,000. The corresponding average index numbers were 15.3, 38.1, 75.6, 43.5, and 28.1.²³ Factors tending to counteract this influence are the large gold exportations which normally begin in April and reach their highest point in May or June,²⁴ and the increase of subtreasury holdings of cash, which normally takes place from May to July.²⁵ (3) Our foreign trade at this period tends on the whole to favor an easy money market.²⁶ The export trade is relatively small, reaching its minimum in July, while the import trade tends to be at its maximum in March and April; and payments to banks against importations are normally made from two to three months or more after the date of shipment. Of the 43 years, 1867-1909, eighteen showed the highest merchandise imports in March, seven in April, none in May (though eight showed second highest imports in May), and two in June; on the other hand, only four years showed highest exports in March, and none showed maximum exports in April, May or June.

The fourth important seasonal swing is represented by the early part of the crop-moving period. Its beginnings are evidenced by the upward movement of call rates and the downward movement of bank reserves about the first of August, and although its other

²³ *Report*, 77.

²⁵ *Ibid.*, 155-158

²⁴ *Ibid.*, 150-151.

²⁶ *Ibid.*, 138.

boundary is difficult to define, it may probably best be placed about the first of October (40th week). Beginning after the 29th week (latter part of July)—the week of lowest call money in the year—call rates advance until the latter part of September. From the 29th week to the 38th week (latter part of September), the average rate rose from 2.3 per cent to 4.3 per cent, and the average index number from 5.3 to 30.6. Sixteen of the nineteen years showed a higher rate in the 38th week than in the 29th, one year (1893) showed a lower rate, and the other two showed the same rate for the two weeks. Bank reserves begin to decline rapidly about the last of July—the time when call rates begin their advance—and they continue to decline until about the middle of September. The average percentage of reserves fell from 28.7 for the 30th week to 27 for the 37th, the average index number falling at the same time from 65.4 to 28.8. In eighteen of the nineteen years the percentage of reserves was lower for the 37th week than for the 30th.

The cause for this rapidly hardening money market is of course primarily the demand made upon the banks of New York for funds for moving fall crops, especially corn, cotton, and wheat.²⁷ Few people appreciate the enormous proportions of these great American crops. The mind can hardly grasp such figures as 2,772,376,000 bushels of Indian corn (1909), 6,336,072,000 pounds of cotton (1908), and 737,189,000 bushels of wheat (1909). In August and September heavy demands for cash are made upon New York City banks by banks in the West and South. The deposits of reserve money kept at New York by these outside banks for the purpose of realizing the two per cent interest allowed by New York banks on bankers' balances are now rapidly depleted, and millions upon millions of cash flow out of New York City, with the results for the New York money market with which all are familiar. The figures collected directly from the New York banks by the National Monetary Commission show that for the four years, 1905-1908, \$78,315,000 of cash were shipped by the New York banks to the Middle Western and Southern States during the months of August and September, or an average for these months of nearly \$20,000,000 a year.²⁸ This

²⁷ For a good discussion of the *Influence of Crops on Business* in America the reader is referred to the article of that title by A. Piatt Andrew in the *Quarterly Journal of Economics*, May, 1906.

²⁸ *Report*, 78-79; 125-129.

strong westward and southward movement is in part offset by the heavy gold importations which normally take place about this time; by the increase of gold (coin and certificates) in circulation resulting principally from the large deposits of bullion at the assay offices, deposits which are fortunately at their maximum in the months of greatest need;²⁹ and finally by the lessening of subtreasury hoards and increasing of federal government deposits in national banks, which during this period appears to represent the policy of our Treasury Department.³⁰

The last of September the demands upon the New York money market are increased somewhat by the requirements for quarterly settlements. In August and September both import trade and export trade tend to be relatively small.³¹

The fifth and last important seasonal period in the New York money market extends from about the first of October to the end of the year. During this period the market exhibits many minor fluctuations and much instability; nor does it show the regularity from year to year which characterizes the other seasonal periods. On the whole, however, the relative demand for money and capital tends to remain at substantially the high level reached about the first of October.

Call rates of interest, as measured by average figures, continue at their relatively high level until the forepart of December, with the exception of the two minor declines shown on the chart, which did not occur in a sufficient number of years to be representative. During this period, however, the rates from year to year exhibited much irregularity.³² Throughout December there occurs an increase in call rates, reaching the maximum figure for the year in the fifty-second week. The average rate rose from 4 per cent in the 48th week, to 7.4 per cent in the 52nd week, while the average index number rose from 26.8 to 49.3. This upward movement of the average figures in December was due more to a very few high figures than to any strong tendency for rates to advance at this time. The figures for percentages of reserves to deposits give like testimony to the irregularity of the market dur-

²⁹ *Report*, 146-152.

³⁰ *Ibid.*, 158-159.

³¹ *Ibid.*, 138.

³² For the nineteen years there were ninety-five index numbers in the 44th, 45th, 46th, 47th, and 48th weeks together, and of this number there were fifty-three below 25, twenty-five between 25 and 49, ten between 50 and 74, and seven between 75 and 100.

ing the last three months of the year. The average percentage of reserves to deposits, which was 27 for the 37th week, was 27.7 for the 52nd, while the corresponding average index numbers were 28.8 and 35.3. In eleven years the percentage of reserves was higher for the 52nd week than for the 37th, and in eight years it was lower.

The westward movement of cash continues strong throughout October but falls off rapidly in November and December, and by the latter month the return flow has set in; the southward movement declines in November, but shows some signs of increasing temporarily in December. For the four years covered by the Monetary Commission's inquiry, New York banks reported shipments to the Middle Western States for October, November, and December, respectively, as follows: \$34,808,000, \$26,310,000, and \$18,871,000, the corresponding average index numbers being 81, 57.7, and 45.5; they reported shipments to the Southern States for the same three months respectively of \$24,167,000, \$17,535,000, and \$20,129,000, the corresponding average index numbers being 73.9, 49.5, and 58.8.³³

Gold imports are at their maximum for the year in October, but decline to a low point in December, in part due to the lessened demand for funds in the United States, and in part to the preparations being made abroad for January settlements. The export trade is heavy during the last three months of the year because of large shipments of cereals and cotton. Of the 43 years, 1867-1909, October was the month of highest merchandise exports in eight years, and of second highest in six; November was the month of highest in two years, and of second highest in twenty-one; December was the month of highest in twenty-three years, and of second highest in ten. These three months are also frequently months of large merchandise imports.³⁴

Throughout October, November, and December, the United States Treasury Department normally continues to increase its deposits in national banks, of which New York City gets its share.³⁵ The latter part of December the market is hardened by the demands for holiday trade, preparations for January 1st settlements and for published statements.

We have now traced the five principal seasonal periods in the

³³ *Report*, 78-79.

³⁴ *Ibid.*, 138, note.

³⁵ *Ibid.*, 155-159.

New York money market, viz., (1) a period of a weakening market, extending from the beginning of the year until about the middle of February; (2) a period of spring revival extending until the latter part of March or the forepart of April; (3) a period of late spring decline followed by a summer depression and extending until about the first of August; (4) a period of rapid advance under the pressure of the crop moving demand, extending until about the first of October; (5) a period of instability and much uncertainty, with money rates normally high, extending until the end of the year.

These periods, with the possible exception of the last, are marked off with clearness. The seasonal swings are wide in their extent, and quite regular in their occurrence. It is doubtful if they are as pronounced in any other advanced country. These seasonal ups and downs result from changes in the demand for loanable capital relative to the supply. Obviously if the supply were highly elastic seasonal variations in the demand would have little influence upon money market rates. Loanable capital consists primarily in money (including bank notes) and check deposits in commercial banks. Our money supply is notoriously inelastic. During the period under study it has been increasing from year to year, and the annual increase of gold (coin and certificates), national bank notes, and of all other kinds of money taken together, has fortunately taken place normally during the last five months of each year—the time when it has been needed most. Our currency, however, possesses little contracting power.³⁶

It is our deposit currency that must serve as the buffer for our widely varying seasonal demands for loanable capital and media of exchange. The best criterion of deposit currency is found in bank clearings, and the seasonal variations in New York clearings for the period 1890-1908 are given in the table (opposite p. 40) and shown in Chart I (curve D). A glance at these figures and at the corresponding curve shows that the seasonal swings of bank clearings in New York City conform fairly closely to the five seasonal swings which we have found for the New York money market.³⁷ Even this elasticity, however, has decided limitations, greater than that of the deposit currencies of most other advanced countries. Deposits are payable on

³⁶ For a fuller discussion of seasonal variations in the monetary circulation of the United States, see *Report*, chap. vi.

³⁷ A discussion of this correlation will be found in the *Report*, 160-163.

demand in cash, and their expansive power through loans, is limited by cash reserves. This limitation is a peculiarly effective one in this country by reason of the rigidity of our legal reserve requirements; and of the inability of banks to rediscount to any extent their paper in times of need, because of the absence of a central bank and because of the ill repute in which rediscounting is held in this country. Deposit currency under our present defective banking system does not possess sufficient elasticity to meet the diverse seasonal demands of the money market, except at the expense of widely varying interest and exchange rates, large and costly currency and gold shipments, and frequent maladjustments of the market.

The real influence upon our economic life of these pronounced seasonal variations in the money market is difficult to measure. Probably their influence is greater and more far-reaching than is generally supposed, despite the fact that normal seasonal movements are to some extent anticipated and discounted. The limits of this article will permit only the bare mention of a few of these influences.

First. Wide and frequent fluctuations in interest rates, bank reserves, and exchange rates, resulting as they do in varying expenses to business at different seasons of the year, and in variations and uncertainties in the facilities which banks can offer in the way of loans and discounts, are impediments to legitimate business enterprise. They engender an element of risk and cause anxieties which probably result in higher expenses of production (including marketing) and heavier burdens upon the consumer.

Second. The rapid alteration of periods of redundancy and periods of scarcity unduly encourages speculation. Surplus funds must find uses in times of redundancy from which they may be quickly withdrawn in times of scarcity. The point may be illustrated by two quotations from the *Commercial and Financial Chronicle*. In its issue of June 24, 1899 (p. 1205), it said: "Every form of paper money we have is without the homing quality Instead of returning to the issuer when out of employment it collects at our leading trade centers, makes the money market abnormal, fostering every kind of speculation, deranging domestic affairs and every foreign trade condition." About three months later (September 30, 1899, p. 671) the *Chronicle* said, commenting upon the opposite phase of

CHART I

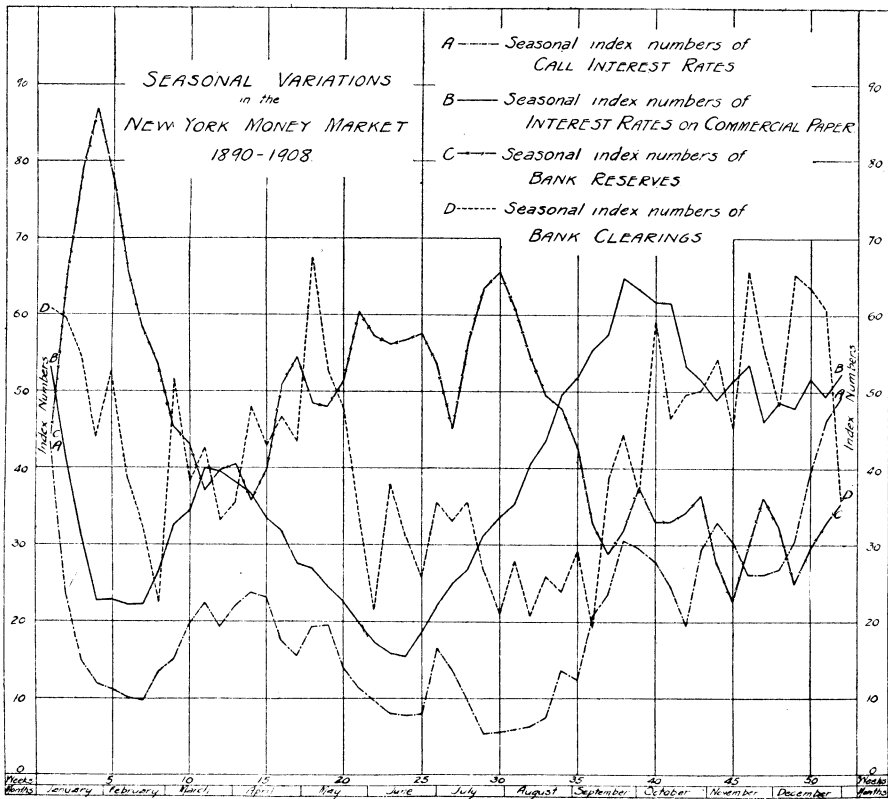
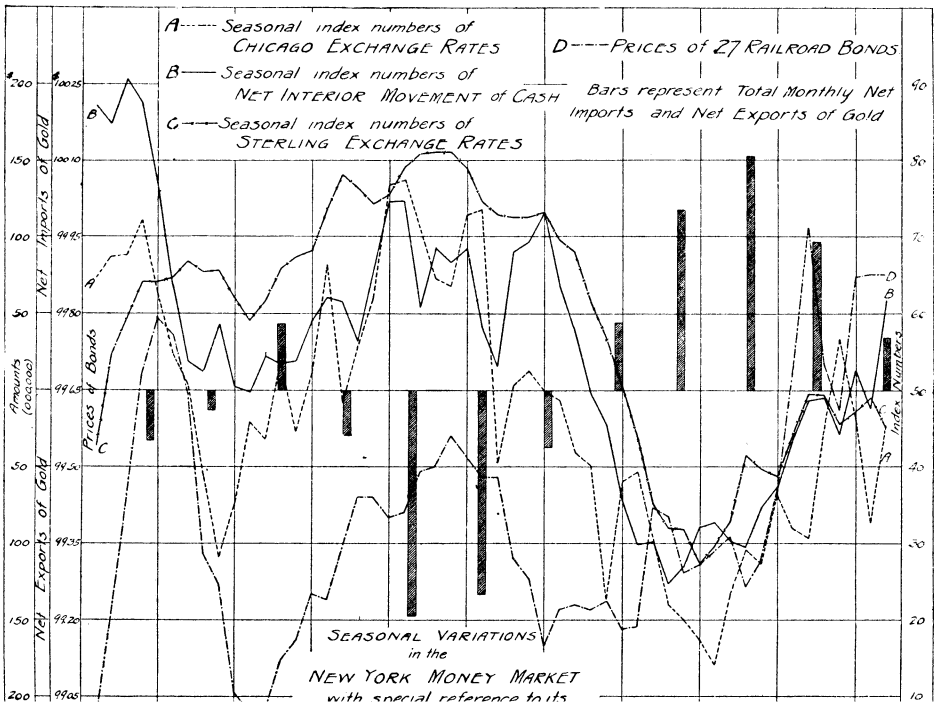


CHART II



this seasonal elasticity: "These autumn conditions bring out the same old defect, rigid inflexibility, but the derangement produced is of quite another sort. In June, money was so excessive that it unduly stimulated speculation; in September it is in so short supply that the money lender is not only discriminating between borrowers and securities, but accomodation is unprocurable, except at very high rates."

Third. The third result is corollary to the one just mentioned. It is the influence of these seasonal movements, under our inelastic currency system, upon prices. To test this influence in a very limited way, the writer has made a study of the seasonal fluctuations in the prices of twenty-seven railroad bonds for periods of from nine to nineteen years, ending 1908. Accumulated interest has been deducted from all quotations.³⁸ The seasonal composites of prices for all twenty-seven bonds (393 "bond-years") are given in the table (opposite p. 40), and that for average prices is plotted as curve D of Chart II. While the range of seasonal fluctuations is not wide, the curve shows a fairly close responsiveness of the seasonal swings of bond prices to those of the New York money market. Prices advance in January, when the money market is becoming easier, they decline from about the middle of February to the last of March, at the time of the spring revival. They advance again during the weakening money market of later spring to a high level for the early summer. For the period from the middle of June until early September, the evidence is contradictory, and the testimony of the average figures is not fairly representative of the movements for the individual years. An analysis of these latter figures serves on the whole to point to a tendency for prices to continue moderately high until the forepart of September.³⁹ Beginning near the middle of September, some time after the crop-moving demand has become pronounced, bond prices tend downward until about the middle of October. From this time, after the heaviest part of the crop-moving demand is over, until early December, they tend upward. In addition to the relaxation of the crop-moving demand for money, another factor is the tendency for dealers to accumulate bonds in anticipation of an increasing demand rising from the dividend and interest disbursements of January 1st; a like influence is doubtless a factor in the high

³⁸ For details concerning the investigation see *Report*, 173-218.

³⁹ *Report*, 213 ff.

prices in June. The latter part of December is a transitional period for bond prices, as it is for many other money market phenomena, the tendency being downward from the 49th to the 51st week, and then upward for the 52nd. This tendency toward instability in December is illustrated by the fact that December had both more maximum annual prices and more minimum annual prices than any other month of the year.

While the writer's investigation did not include a study of seasonal movements in the prices of stocks and of produce, there is a strong presumption that if the fluctuations in the prices of bonds tend to conform to the broad seasonal swings of the money market, the same would be true (and perhaps even in a higher degree, although more disguised by other influences) of the prices of stocks and of produce.

Fourth. A fourth influence is that on commercial failures. The very strong increase in commercial failures during the fall is probably due in a considerable degree to the tightening money market, which characterizes that period.⁴⁰

Fifth. The fifth and final influence to mention is that on financial panics.⁴¹ Is there any tendency for financial panics to occur in those seasons of the year when the money market is normally stringent? To this question the evidence points strongly to an affirmative answer. Of the eight panics which have occurred since 1873, four took place in the fall or early winter (i. e. those of 1873, 1890, 1899, and 1907); three broke out in May (i. e. those of 1884, 1893, and 1901); and one (i. e. that of 1903) extended from March until well along in November. Out of a total of twenty-one minor panics or "panicky periods" occurring between 1876 and 1908, inclusive, nine occurred during the fall and early winter, eight during the spring, one began in May and extended into June, three occurred during the summer months, and one occurred in February. Here then is another illustration of the old principle that a chain will break at its weakest link.

No matter how perfect our currency and credit system, the great importance of agriculture in our economic life will doubtless always result in considerable seasonal swings in our money markets, and particularly in that of New York City—the most

⁴⁰ A more detailed discussion of this subject based upon the Bradstreet and Dun figures will be found in the *Report*, 218-222.

⁴¹ *Ibid.*, 222-223.

important and most sensitive one. At present we have a market called upon to respond to seasonal demands of a most widely varying character, and a currency lacking to a remarkable degree the quality of elasticity. Our deposit currency, though elastic in the absolute sense of the term, is one of the most inelastic deposit currencies to be found in any country with a highly developed banking system.

The securing of elasticity of currency and credit, not only in the infrequent panic periods, but from January through December of every year, is the big problem now before the National Monetary Commission.

E. W. KEMMERER.

Cornell University.